

Industrial - Control

Third summary

Micro controllers Lec 2, 3

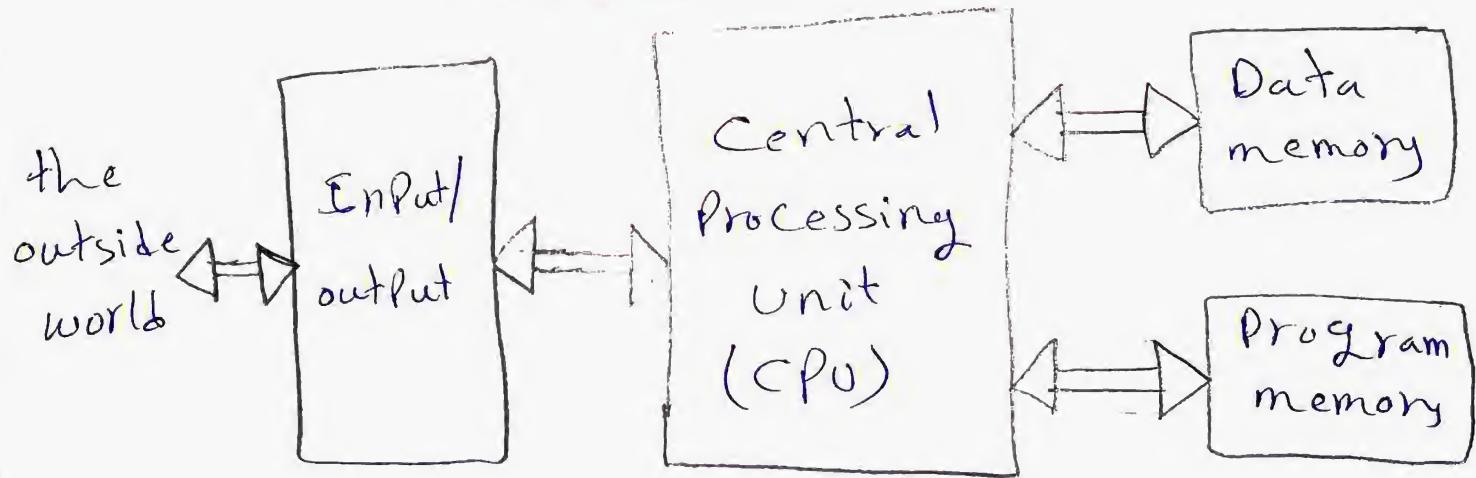
Micro controllers & Embedded systems

Embedded systems

↳ system whose principal function is not computational, but which is controlled by a computer embedded within it.

slides ٢١ (3 نوافذ و التي هي

Computer essentials



Instruction sets

CISC : Complex instruction set Computer

RISC : Reduced " " " "

Memory type

حل المذكرى تتابع المؤمنين

Volatile : random access memory (RAM)

Non- " : Read only memory (ROM)



Micro Processors & Micro Controllers

- ↳ micro processor is processor on silicon chip.
- ↳ micro controllers are used in embedded computing.
- ↳ micro controller is micro processor with added circuitry.

(slides) الـ micro controllers هي المـ controllers

PIC microcontrollers

- ↳ Peripheral interface controller, was designed by general instruments.
- ↳ PIC was sold to microchip.
- ↳ Feature:-
 - * low-cost.
 - * Harvard-structure.
 - * RISC.
 - * 8-bit.
 - * self-contained.
 - * pipelined.
 - * single accumulator.
- microchip 12F508 is good micro-controller to introduce range of features of microcontrollers in general and of PIC in particular.

* What is meant by active-high? active-low?

Active high → switch is said to be active-high
when activating it (pressing) will cause
the input of P3 to be high.

* What command is used to read the
state of an input?

```
Do
    DEBUG ? IN3
    PAUSE 250
Loop
```

* What command structure is used to make
decisions? (IF -then- else) فیصلہ

```
Do
    DEBUG ? IN3
    IF (IN3 = 1) THEN
        HIGH 14
        PAUSE 50
        LOW 14
        PAUSE 50
    ELSE
        PAUSE 100
    ENDIF
Loop
```

IF (condition) THEN Code
IF (condition) THEN
 Code
ENDIF
IF (condition) THEN
 Code
ELSEIF (condition) THEN
 Code
ENDIF

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* AND, OR, XOR are logical operations.

What does each required to be true?

AND : both conditions have to be true (1 & 1)

OR : one of them or both of this ~~we~~ have to be true (1 & 0 or 1 & 1)

XOR : two conditions are different such that (0 & 1 or 1 & 0)

* What does the random command do? What is meant by seed value?

Random Command

↳ used to provide a pseudo-random number generator based on a seed value

Seed Value

↳ It provides starting point.

↳ by changing it, sequence changes.

* PIN and C.ON can greatly increase code readability.

* Why does real-world use require extensive testing?

↳ To ensure it is accurate and operates correctly under all circumstances.

Notes

* PIN Command :-

↳ used to name I/O

↳ using it, improve the readability of code.

* CON Command

↳ used to name static values (constants)

